



2:D Lighting Compartment Heating

Map

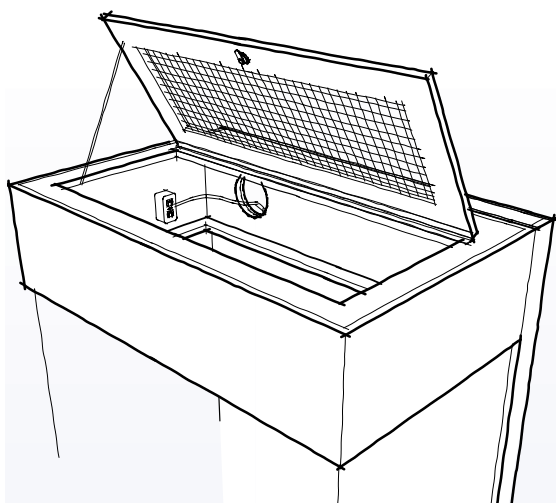


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A significant disadvantage of integral case lighting (besides the risk of electrical fire) is **over-heating** of the display chamber by poorly designed lighting compartments. Adequate ventilation and insulation

of lighting compartments are critical to prevent heat transfer. Fan cooling designs should also include convection cooling for periods of mechanical failure. To ensure adequate heat dissipation

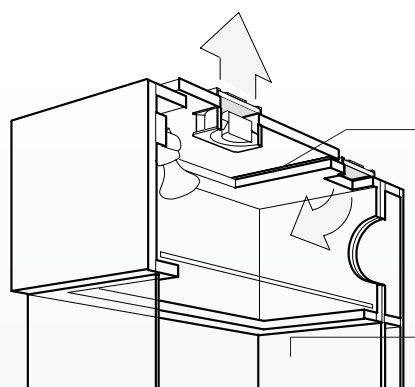
consult a mechanical engineer to determine the BTU's produced, the size of the vent area and air flow requirements. Key factors include, lamp wattage, compartment size and room temperature.



Lamps and fixtures that do not generate excessive heat can be cooled through natural convection, using well-designed and filtered, ventilation openings.

Heat transfers to objects in 3 ways :

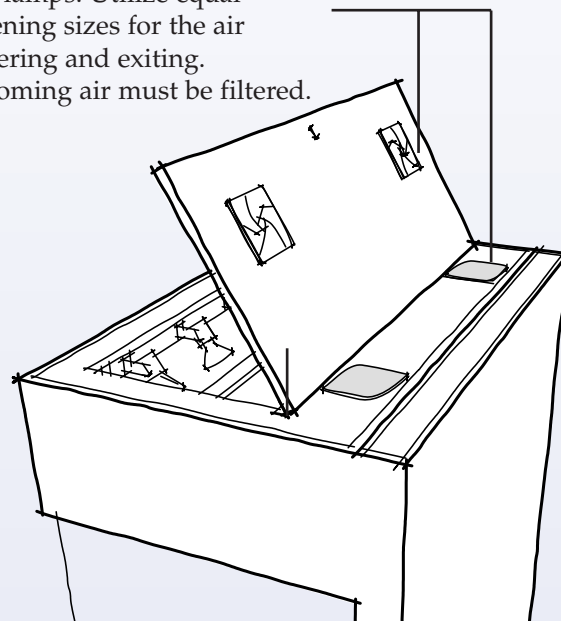
- Radiation Heating - electromagnetic wave motion (heating of objects without warming the air between them and the lamp);
- Conduction Heating - transmission from molecule to adjoining molecule (heating of display chamber material through the adjoining case structure);
- Convection Heating - transmission by air motion: warmer surfaces to cooler (heating of display chamber air through contact with the heated glazing surfaces).



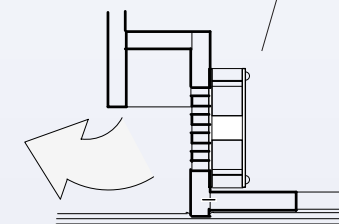
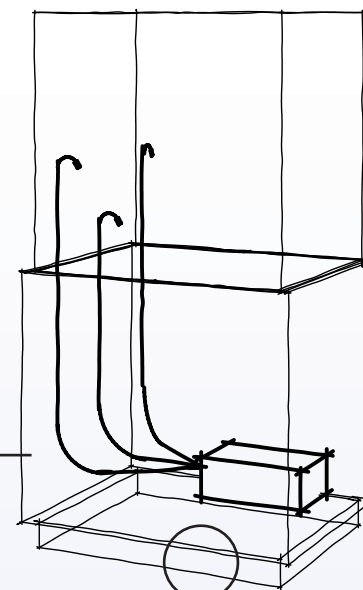
Fans should be oriented to evacuate hot air from the compartment.

Insulated glass panel is an option.

Locate fans near and above the lamps. Utilize equal opening sizes for the air entering and exiting. Incoming air must be filtered.



Insulate below deck lighting compartments.



Hot air from lamps located in the base of a case must be mechanically vented from the base area, or the case side.